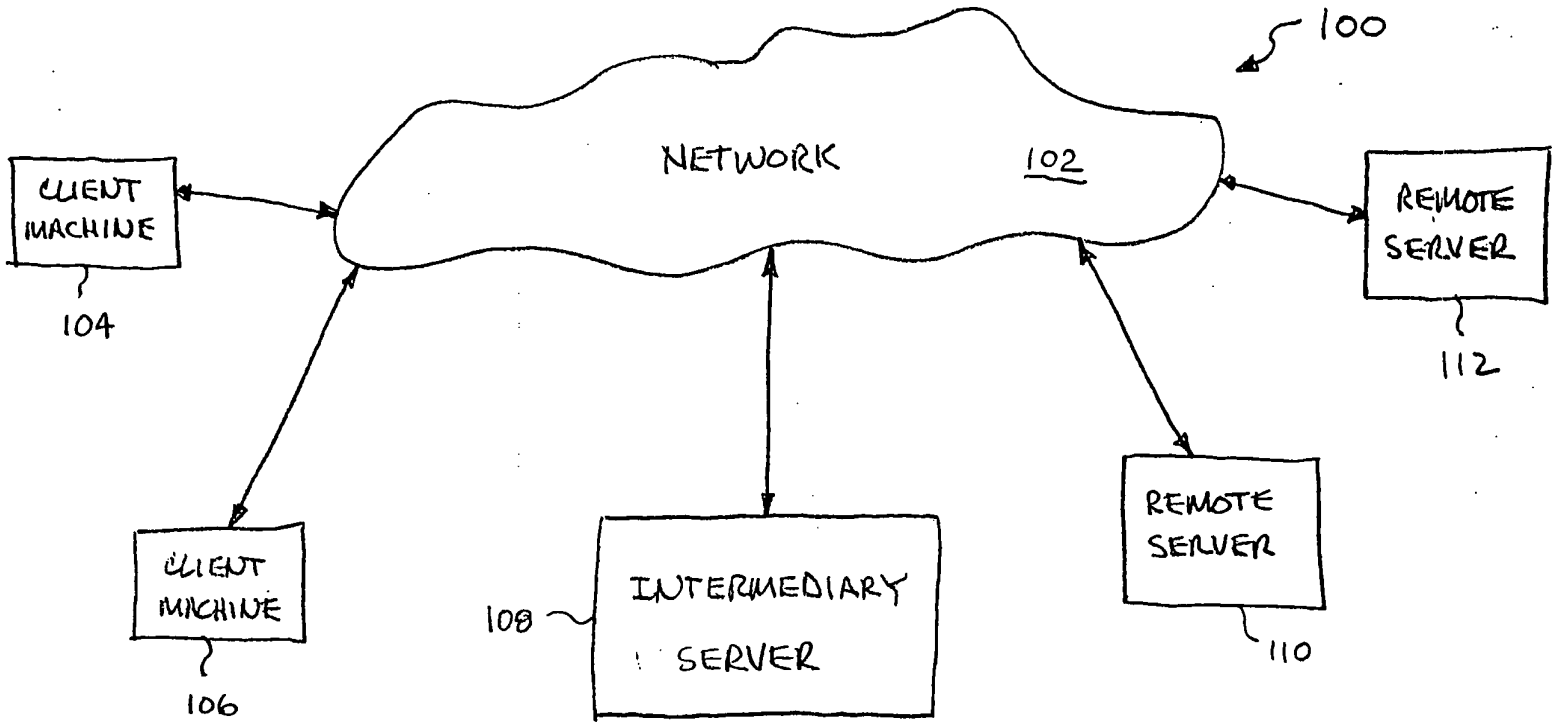


FIG. 1

TOPS 35500

DOCKET 20190260

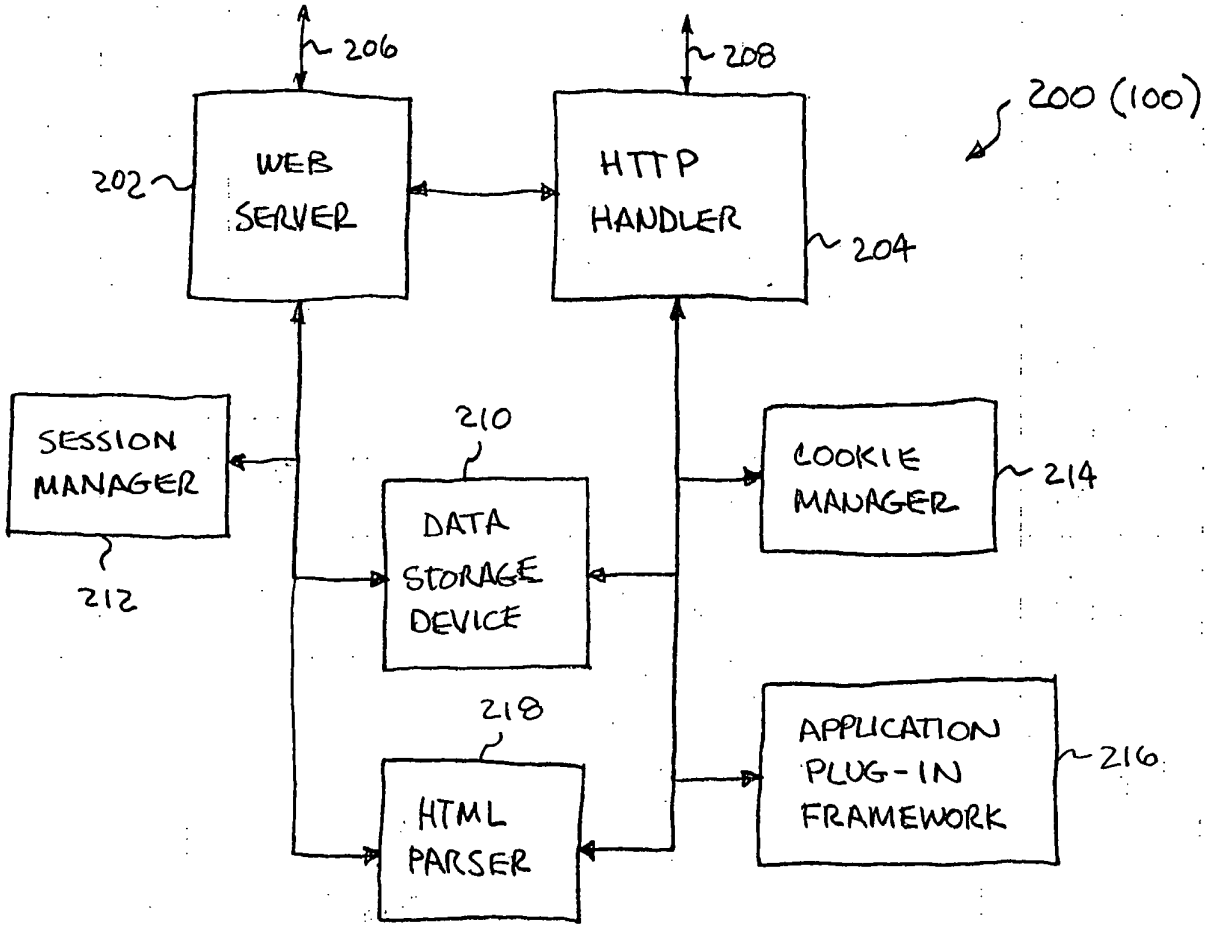


FIG. 2A

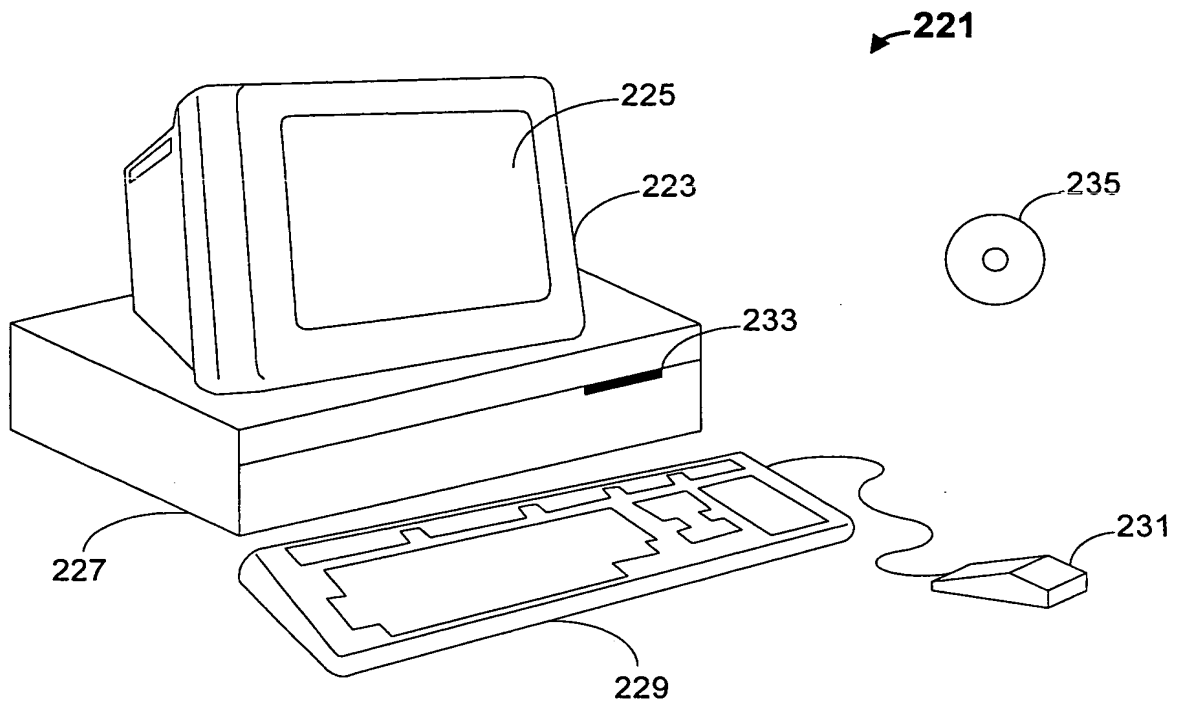
221
225
223
235
233
227
231
229

FIG. 2B

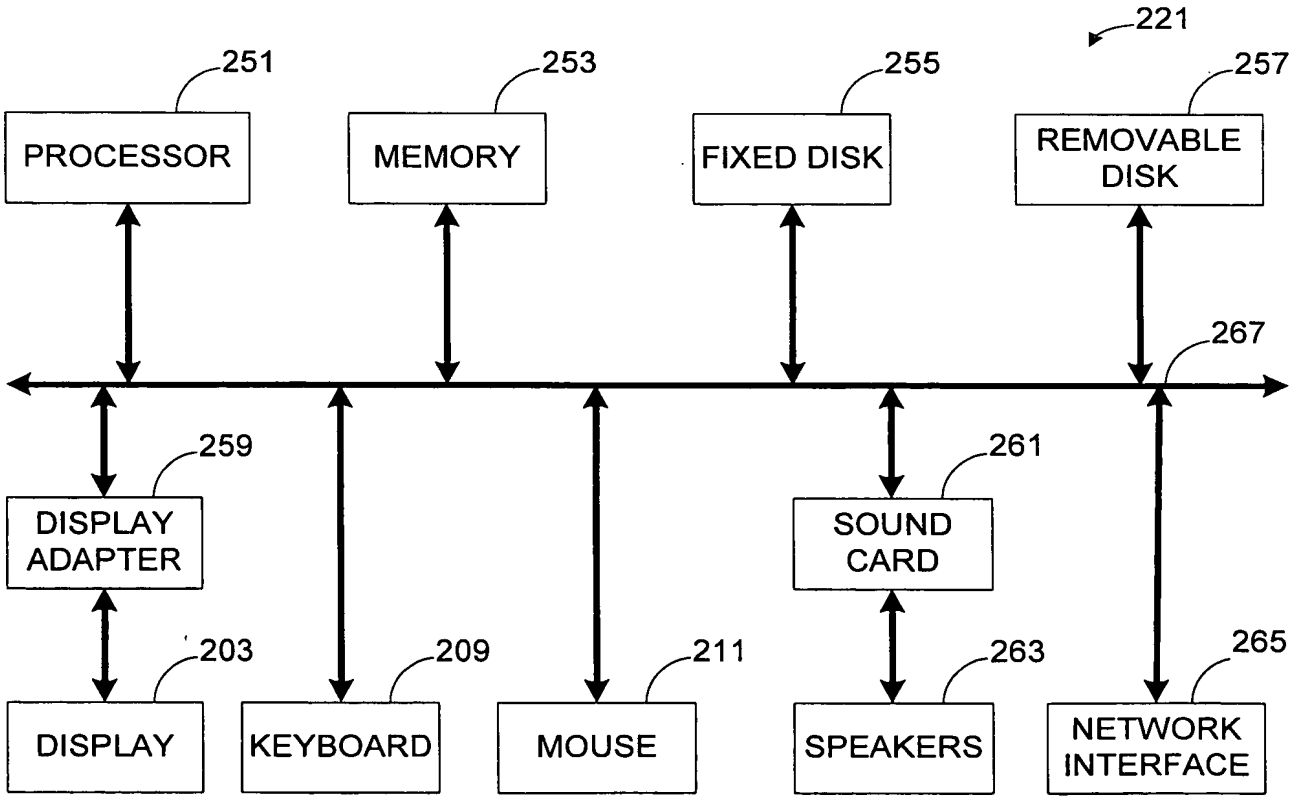
221
251
253
255
257
PROCESSOR
MEMORY
FIXED DISK
REMOVABLE DISK
267
259
261
DISPLAY ADAPTER
SOUND CARD
203
209
211
263
265
DISPLAY
KEYBOARD
MOUSE
SPEAKERS
NETWORK INTERFACE

FIG. 2C

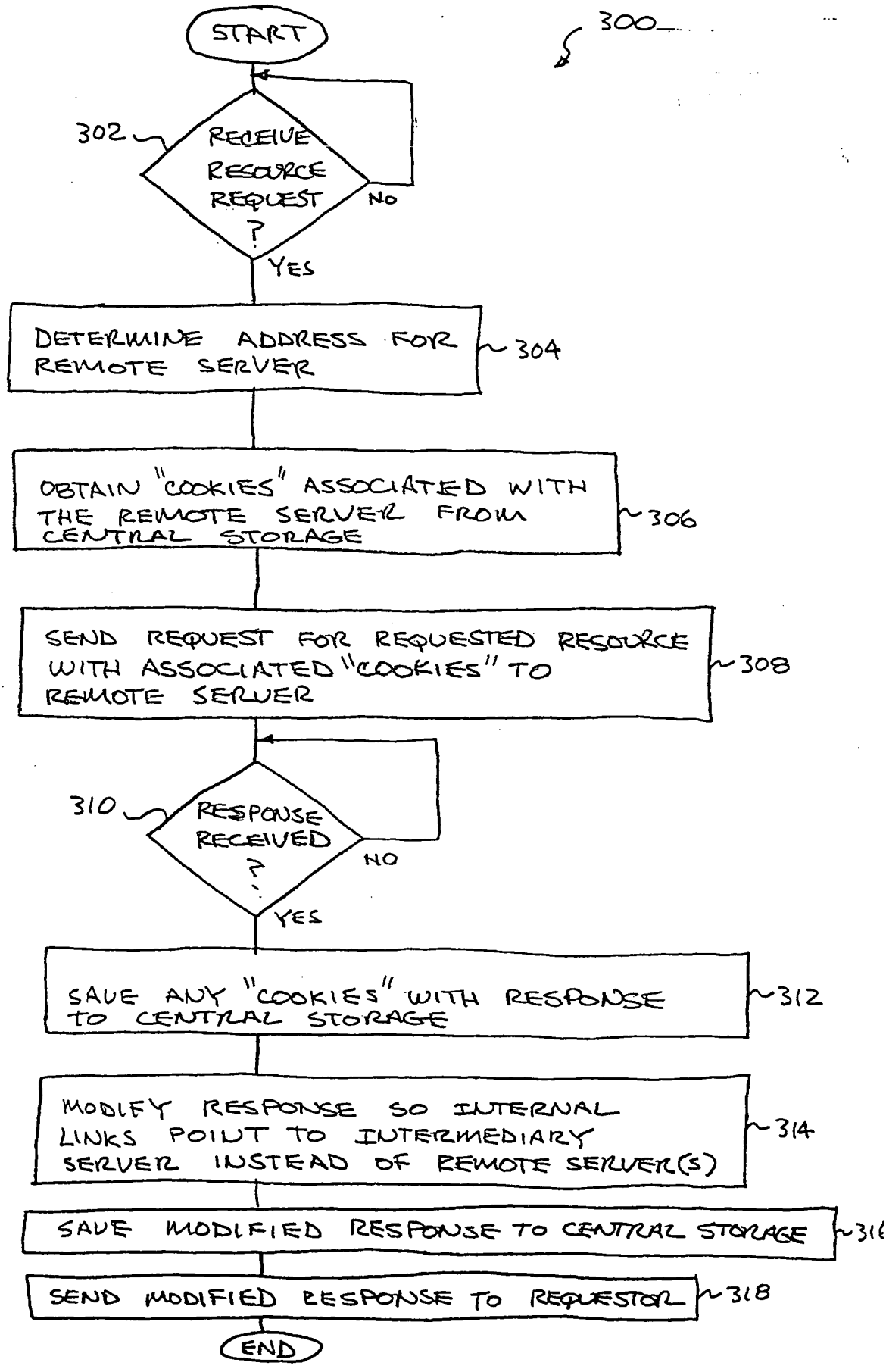
START
300
302
RECEIVE RESOURCE REQUEST ?
No
Yes
DETERMINE ADDRESS FOR REMOTE SERVER
304
OBTAIN "COOKIES" ASSOCIATED WITH THE REMOTE SERVER FROM CENTRAL STORAGE
306
SEND REQUEST FOR REQUESTED RESOURCE WITH ASSOCIATED "COOKIES" TO REMOTE SERVER
308
310
RESPONSE RECEIVED ?
NO
YES
SAVE ANY "COOKIES" WITH RESPONSE TO CENTRAL STORAGE
312
MODIFY RESPONSE SO INTERNAL LINKS POINT TO INTERMEDIARY SERVER INSTEAD OF REMOTE SERVER(S)
314
SAVE MODIFIED RESPONSE TO CENTRAL STORAGE
316
SEND MODIFIED RESPONSE TO REQUESTOR
318
END

FIG. 3

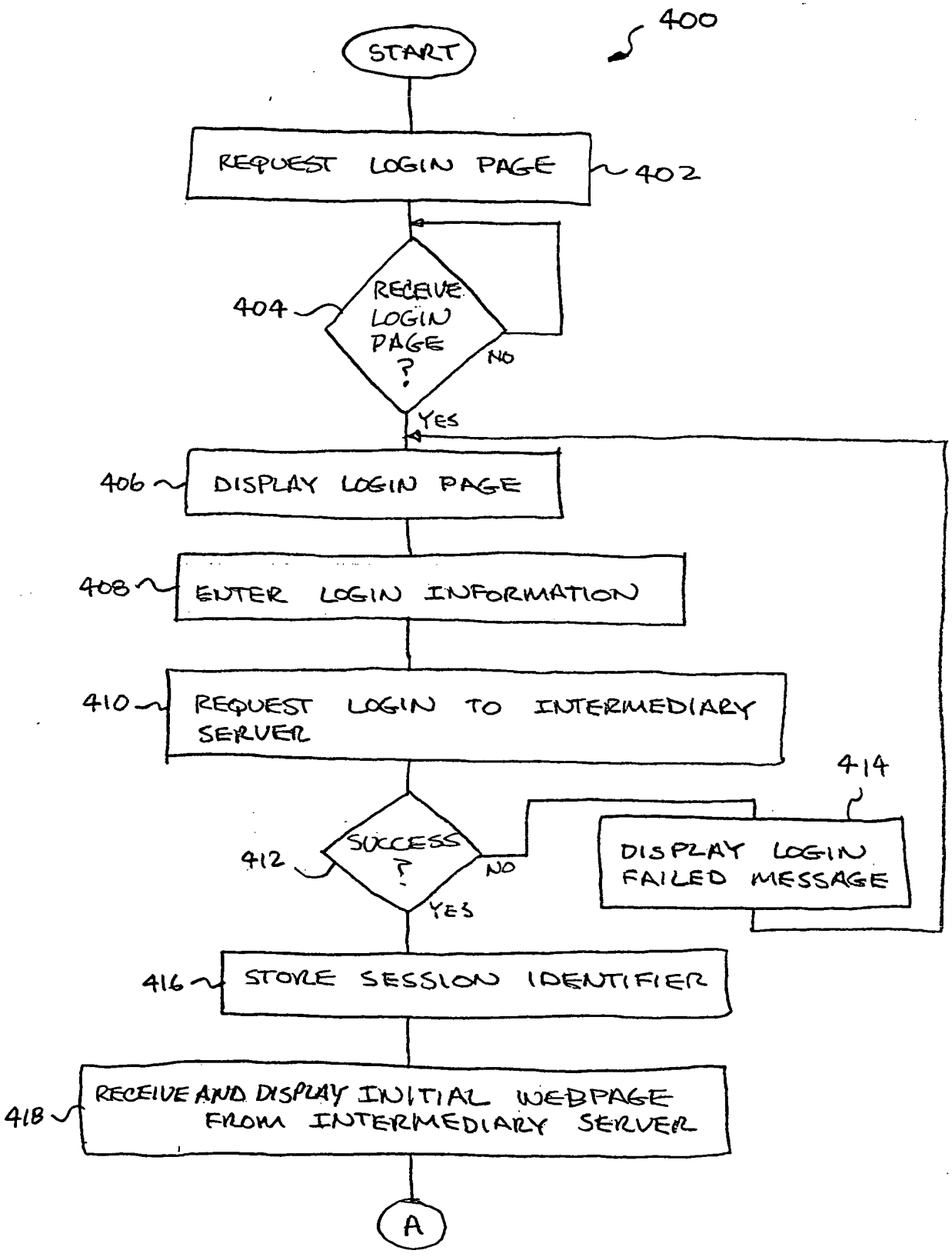


FIG. 4A

TOPS 35530

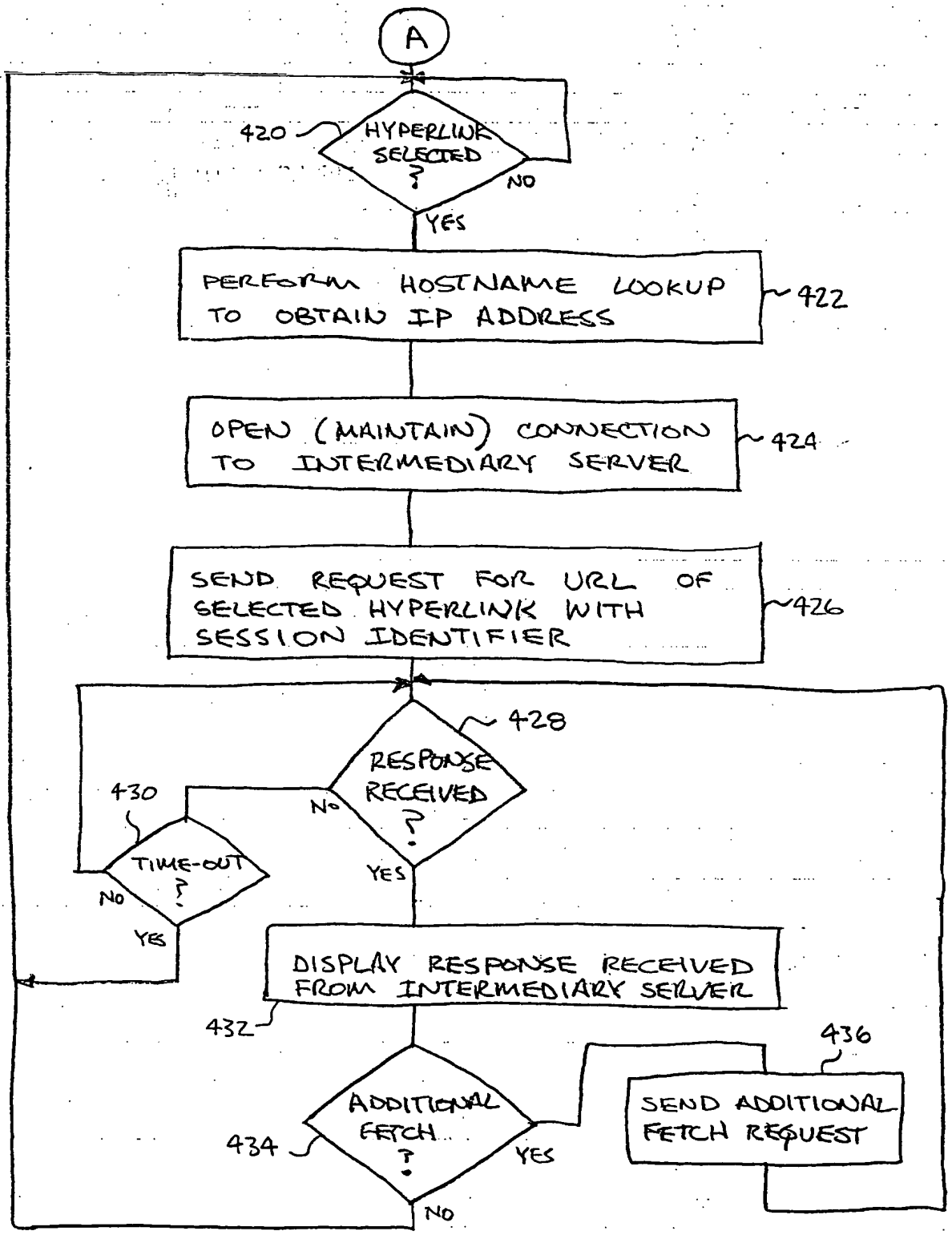
A
420
HYPERLINK SELECTED ?
NO
YES
PERFORM HOSTNAME LOOKUP TO OBTAIN IP ADDRESS
422
OPEN (MAINTAIN) CONNECTION TO INTERMEDIARY SERVER
424
SEND REQUEST FOR URL OF SELECTED HYPERLINK WITH SESSION IDENTIFIER
426
428
RESPONSE RECEIVED ?
NO
YES
430
TIME-OUT ?
NO
YES
DISPLAY RESPONSE RECEIVED FROM INTERMEDIARY SERVER
432
436
ADDITIONAL FETCH ?
434
YES
SEND ADDITIONAL FETCH REQUEST
NO

FIG. 4B

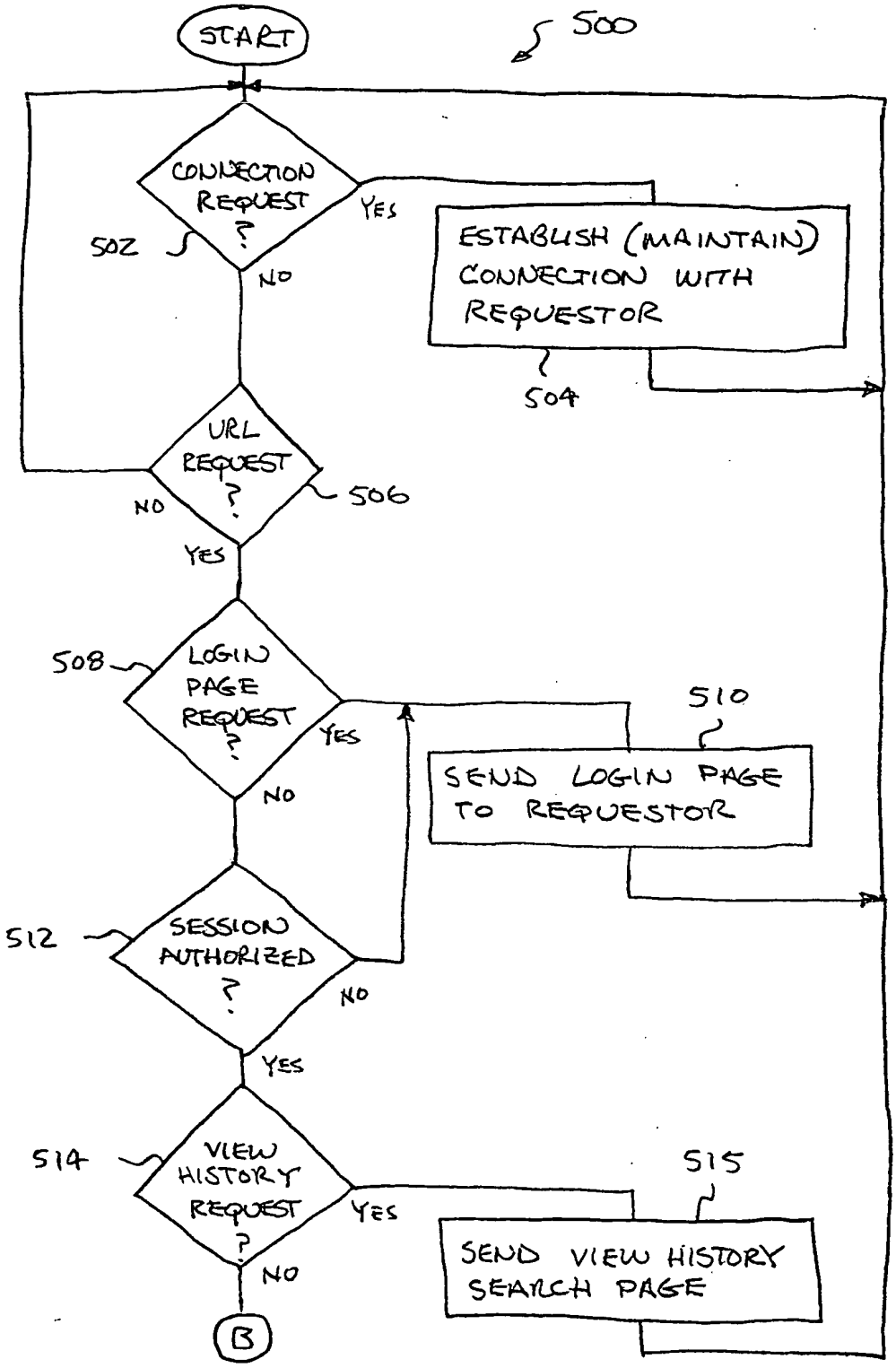
START
500
CONNECTION REQUEST ?
YES
NO
502
ESTABLISH (MAINTAIN) CONNECTION WITH REQUESTOR
504
URL REQUEST ?
NO
YES
506
LOGIN PAGE REQUEST ?
508
YES
NO
510
SEND LOGIN PAGE TO REQUESTOR
SESSION AUTHORIZED ?
512
NO
YES
VIEW HISTORY REQUEST ?
514
YES
NO
515
SEND VIEW HISTORY SEARCH PAGE
B

FIG. 5A

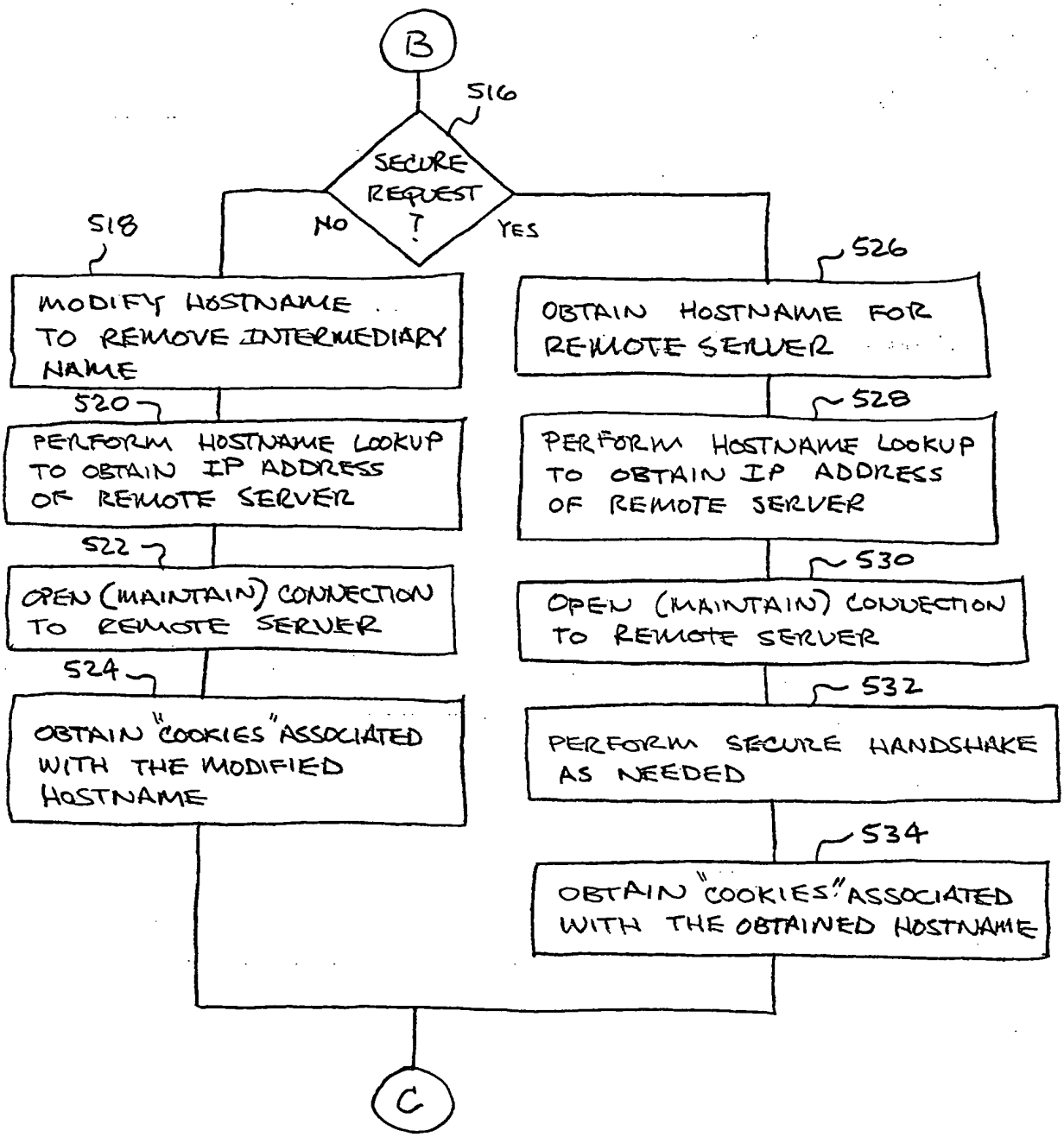
B
516
SECURE REQUEST ?
NO
YES
518
MODIFY HOSTNAME TO REMOVE INTERMEDIARY NAME
520
PERFORM HOSTNAME LOOKUP TO OBTAIN IP ADDRESS OF REMOTE SERVER
522
OPEN (MAINTAIN) CONNECTION TO REMOTE SERVER
524
OBTAIN "COOKIES" ASSOCIATED WITH THE MODIFIED HOSTNAME
526
OBTAIN HOSTNAME FOR REMOTE SERVER
528
PERFORM HOSTNAME LOOKUP TO OBTAIN IP ADDRESS OF REMOTE SERVER
530
OPEN (MAINTAIN) CONNECTION TO REMOTE SERVER
532
PERFORM SECURE HANDSHAKE AS NEEDED
534
OBTAIN "COOKIES" ASSOCIATED WITH THE OBTAINED HOSTNAME
C

FIG. 5B

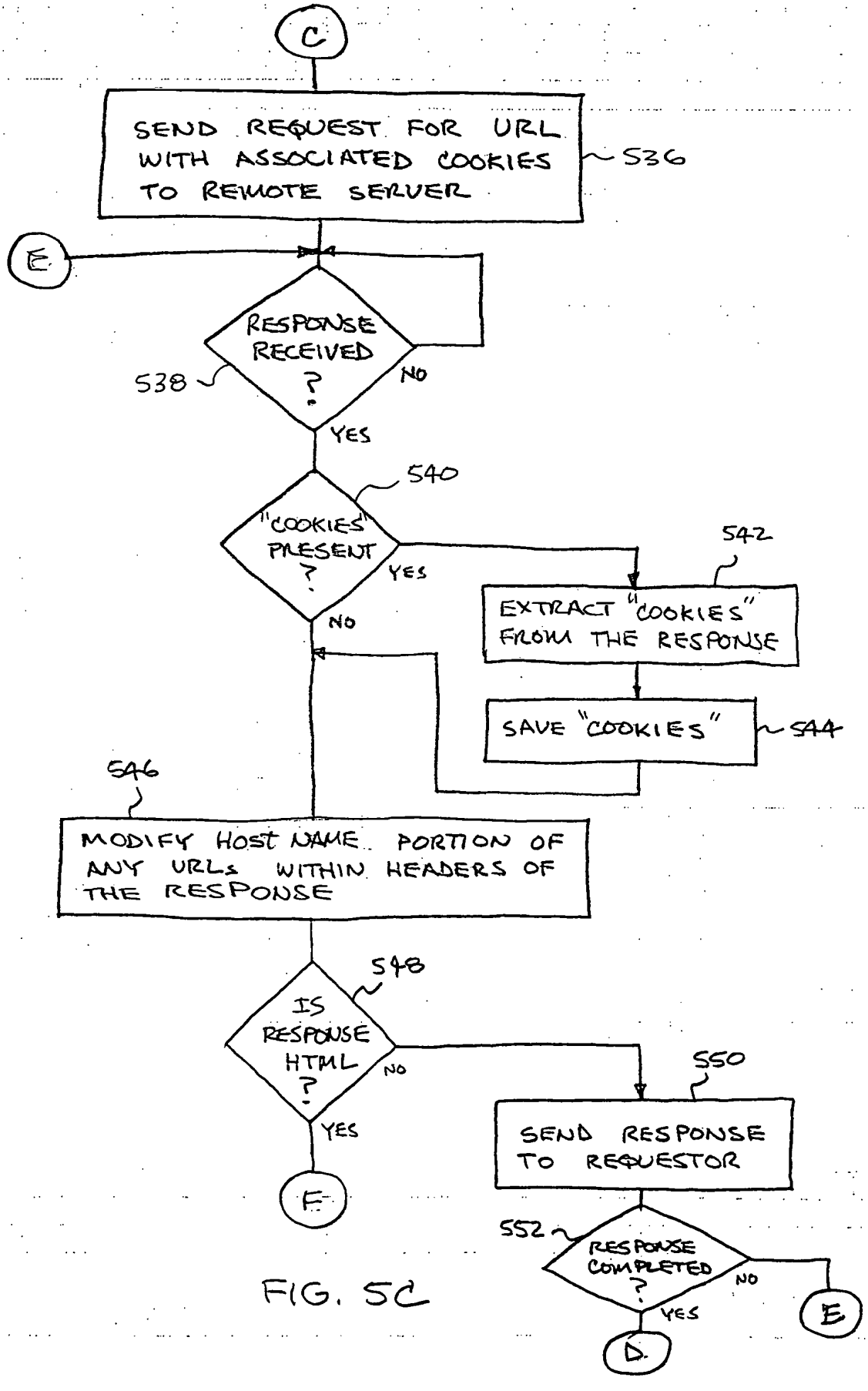


FIG. 5C

TOPS
3550D

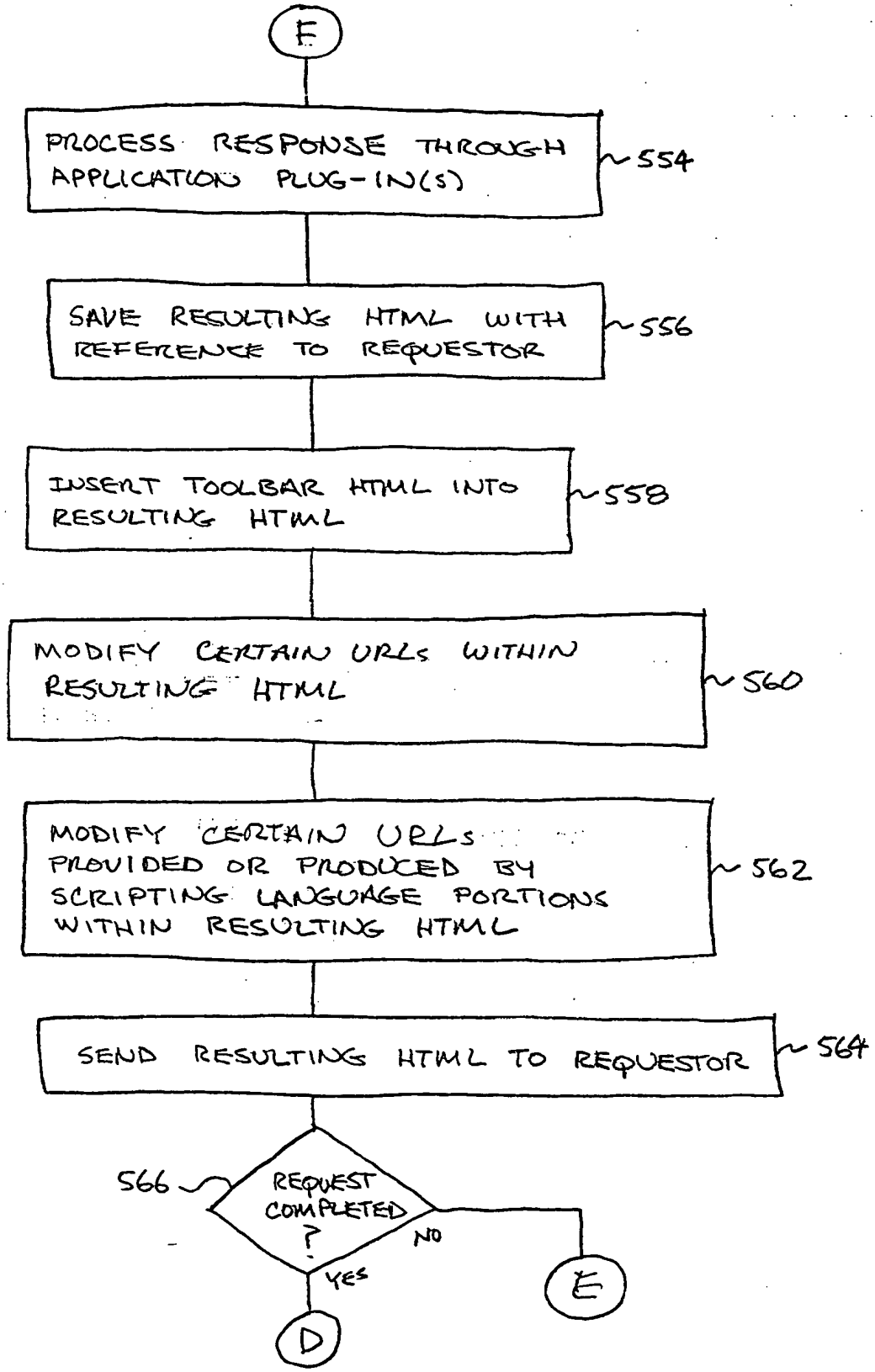
F
PROCESS RESPONSE THROUGH APPLICATION PLUG-IN(S)
554
SAVE RESULTING HTML WITH REFERENCE TO REQUESTOR
556
INSERT TOOLBAR HTML INTO RESULTING HTML
558
MODIFY CERTAIN URLS WITHIN RESULTING HTML
560
MODIFY CERTAIN URLS PROVIDED OR PRODUCED BY SCRIPTING LANGUAGE PORTIONS WITHIN RESULTING HTML
562
SEND RESULTING HTML TO REQUESTOR
564
566
REQUEST COMPLETED ?
NO
YES
E
D

FIG. 5D

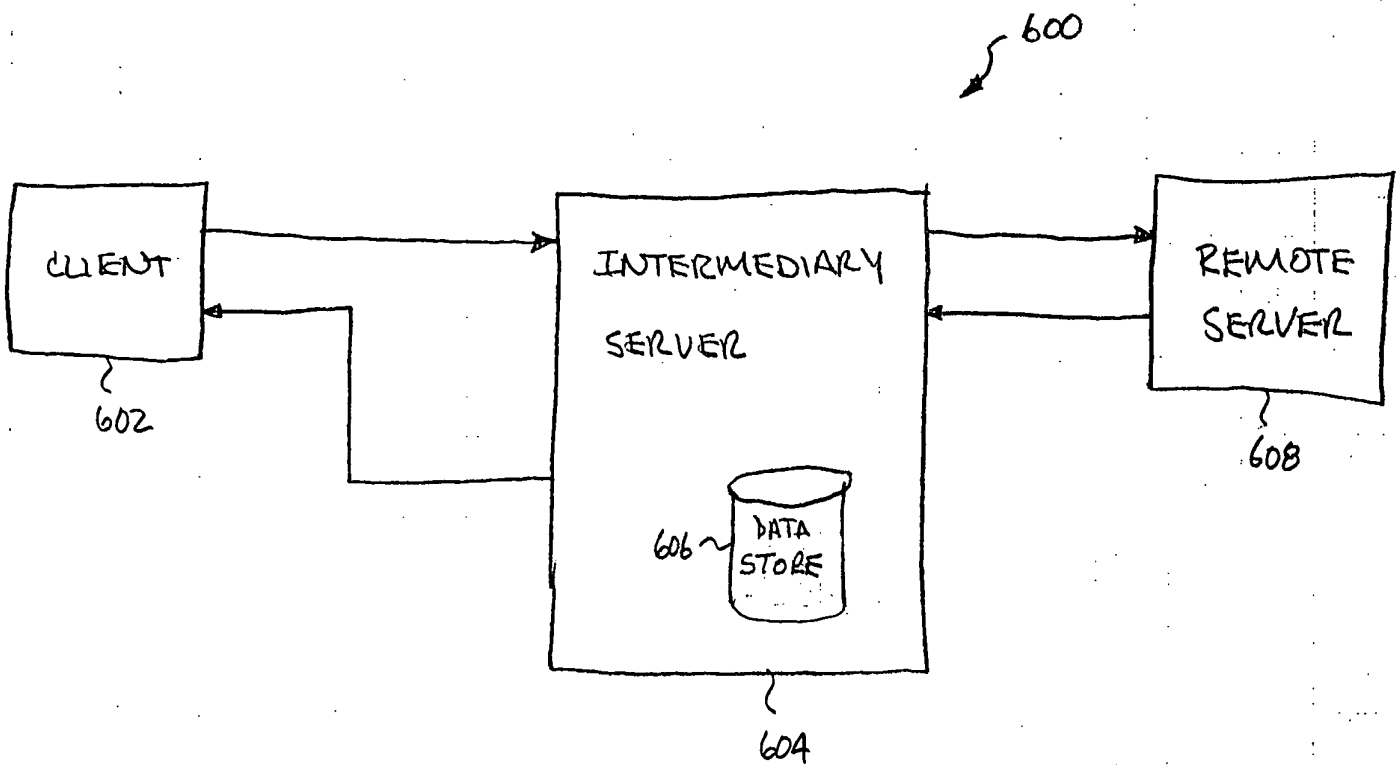
600
CLIENT
602
INTERMEDIARY
SERVER
606
DATA
STORE
604
REMOTE
SERVER
608

FIG. 6

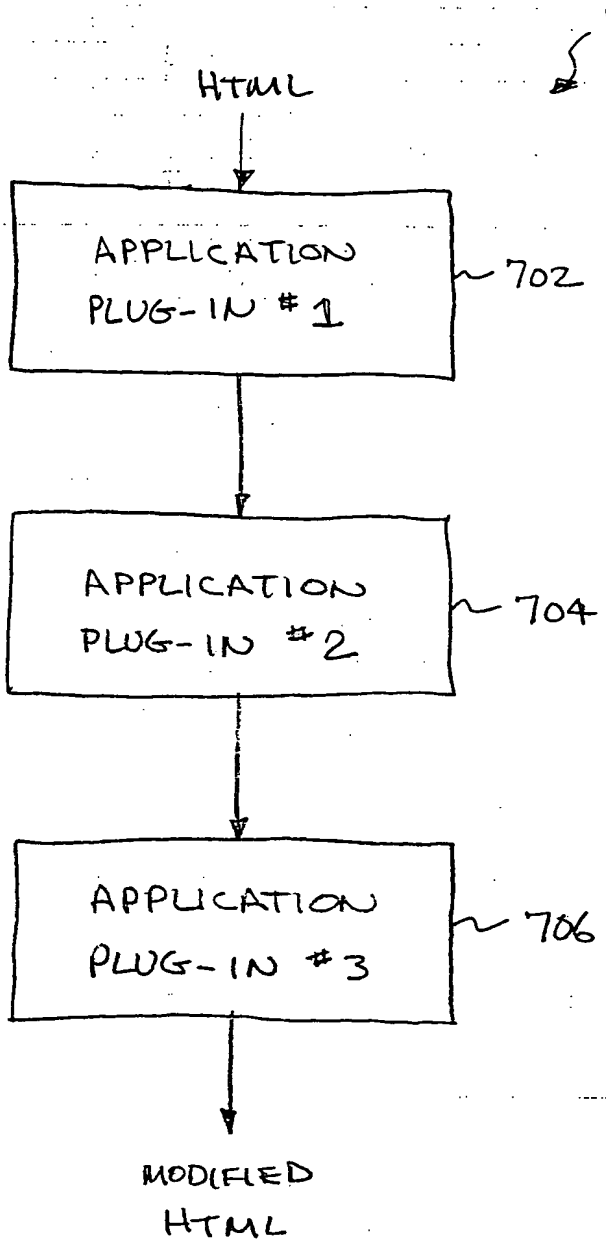


FIG. 7

Docket No. 50277-2500

TOPS 25500

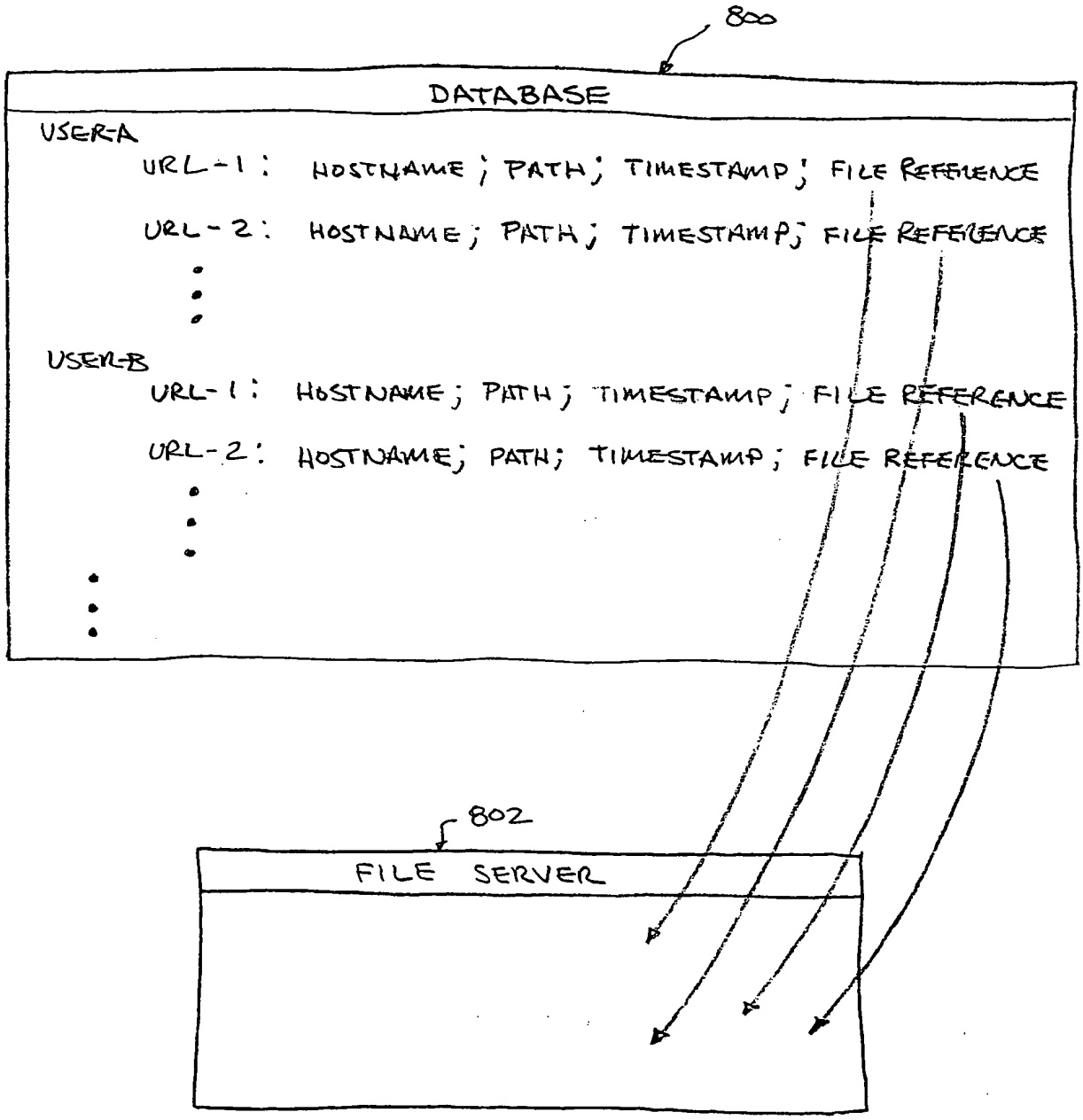
800
DATABASE
USER-A
URL-1: HOSTNAME; PATH; TIMESTAMP; FILE REFERENCE
URL-2: HOSTNAME; PATH; TIMESTAMP; FILE REFERENCE
USER-B
URL-1: HOSTNAME; PATH; TIMESTAMP; FILE REFERENCE
URL-2: HOSTNAME; PATH; TIMESTAMP; FILE REFERENCE
802
FILE SERVER

FIG. 8

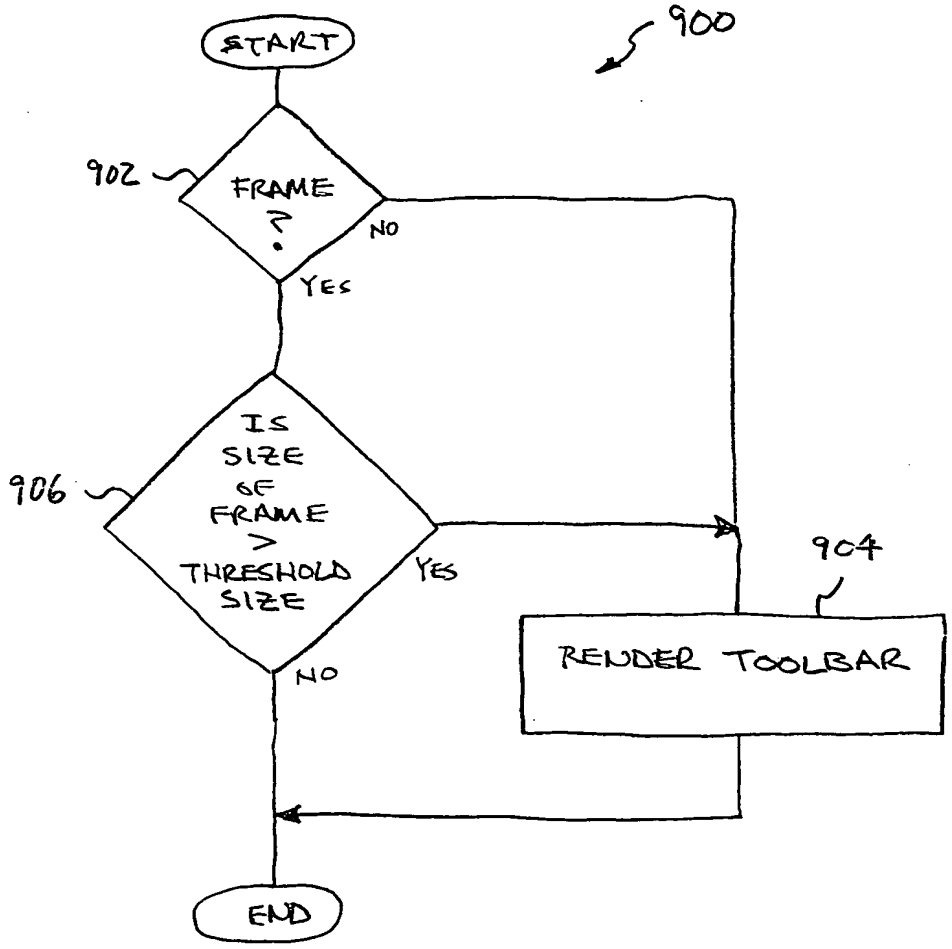
900
START
902
FRAME ?
NO
YES
906
IS SIZE OF FRAME > THRESHOLD SIZE
YES
NO
904
RENDER TOOLBAR
END

FIG. 9A

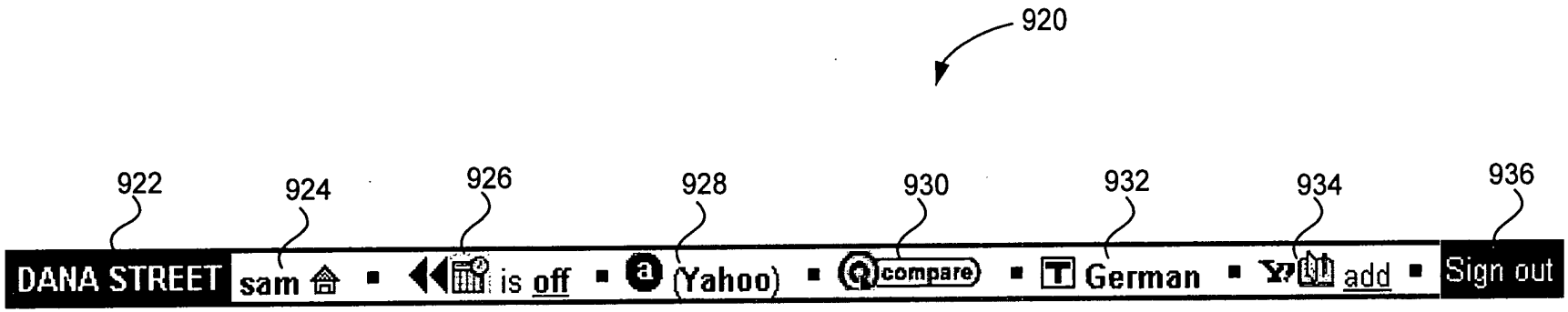
920
922
924
926
928
930
932
934
936
DANA STREET
sam
is off
(Yahoo)
compare
German
add
Sign out

FIG. 9B

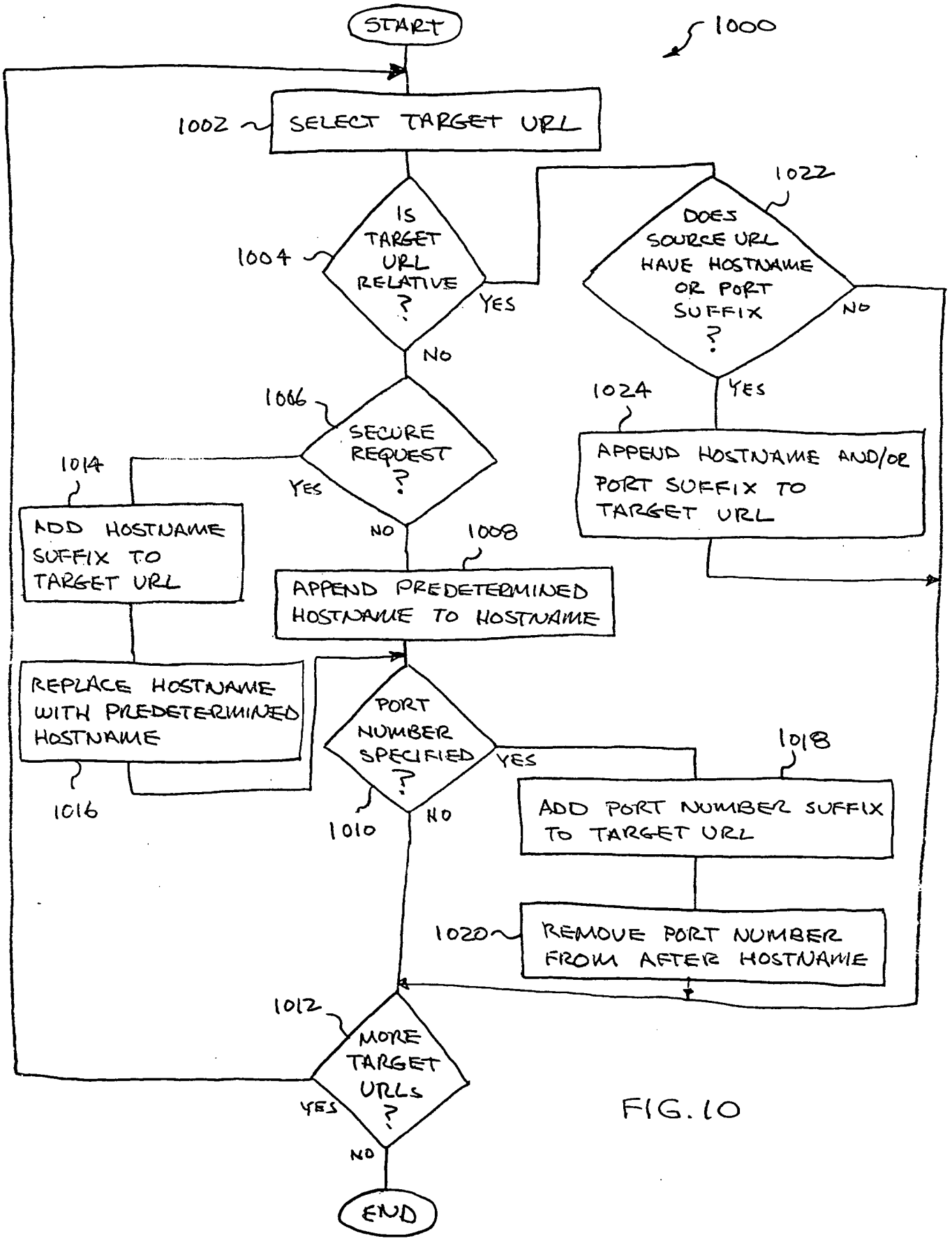
START
1000
1002
SELECT TARGET URL
1004
IS TARGET URL RELATIVE ?
YES
NO
1022
DOES SOURCE URL HAVE HOSTNAME OR PORT SUFFIX ?
NO
YES
1024
APPEND HOSTNAME AND/OR PORT SUFFIX TO TARGET URL
1006
SECURE REQUEST ?
YES
NO
1014
ADD HOSTNAME SUFFIX TO TARGET URL
1008
APPEND PREDETERMINED HOSTNAME TO HOSTNAME
REPLACE HOSTNAME WITH PREDETERMINED HOSTNAME
1016
PORT NUMBER SPECIFIED ?
YES
NO
1010
1018
ADD PORT NUMBER SUFFIX TO TARGET URL
1020
REMOVE PORT NUMBER FROM AFTER HOSTNAME
1012
MORE TARGET URLS ?
YES
NO
END

FIG. 10

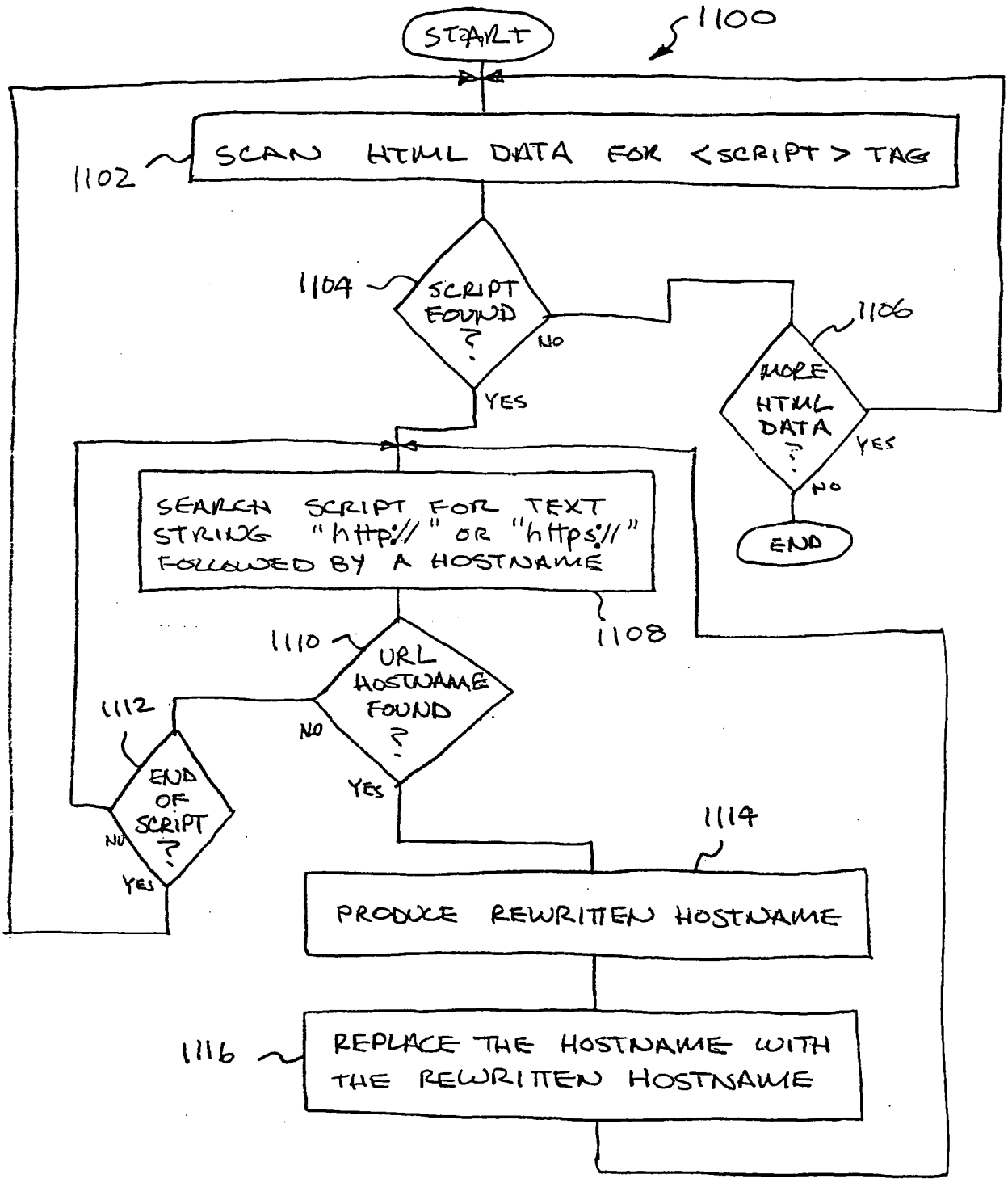
START
1100
SCAN HTML DATA FOR <SCRIPT> TAG
1102
SCRIPT FOUND ?
1104
NO
YES
MORE HTML DATA ?
1106
YES
NO
END
SEARCH SCRIPT FOR TEXT STRING "http://" OR "https://" FOLLOWED BY A HOSTNAME
1108
URL HOSTNAME FOUND ?
1110
NO
YES
END OF SCRIPT ?
1112
NO
YES
PRODUCE REWRITTEN HOSTNAME
1114
REPLACE THE HOSTNAME WITH THE REWRITTEN HOSTNAME
1116

FIG. 11

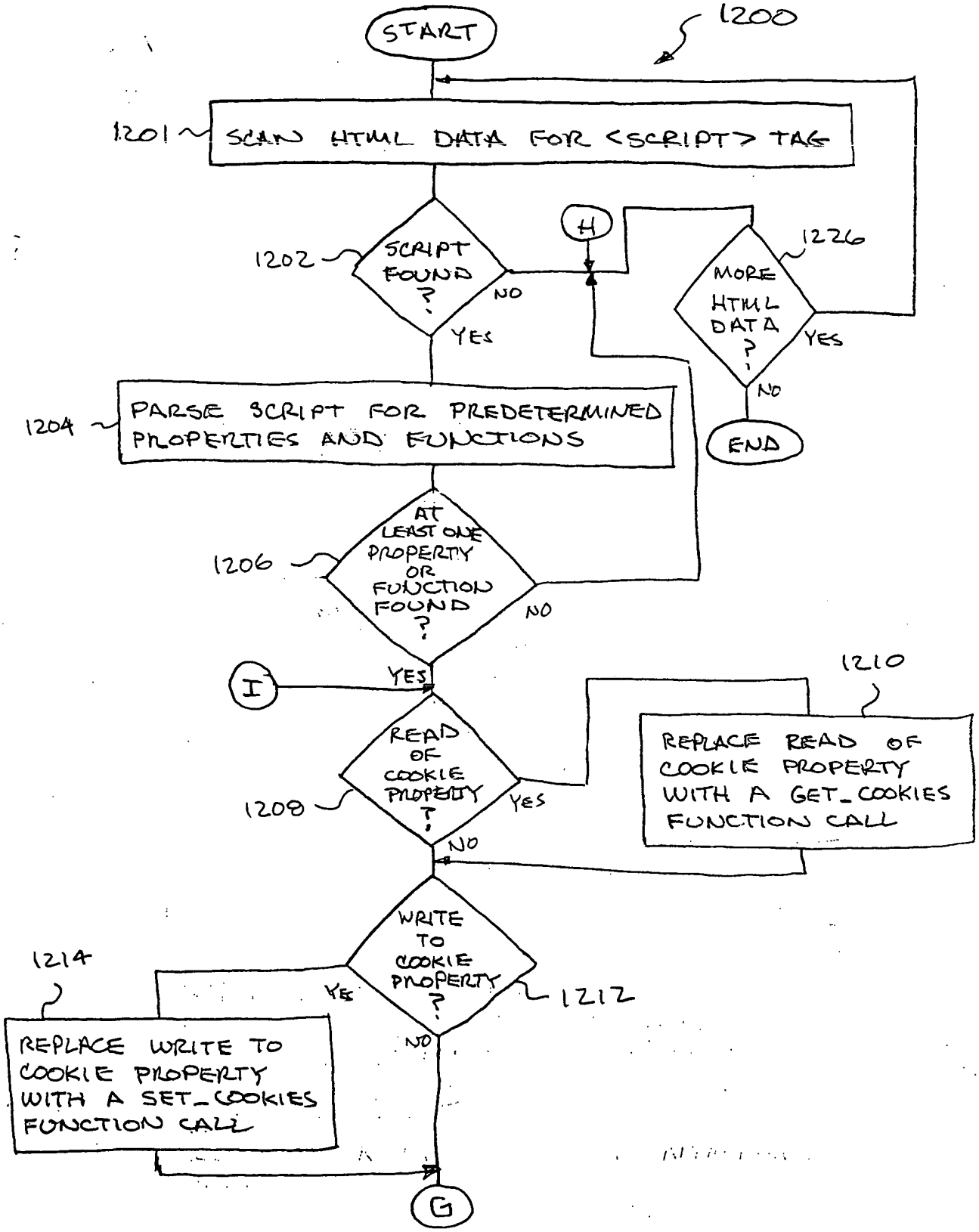
START
1200
1201
SCAN HTML DATA FOR <SCRIPT> TAG
1202
SCRIPT FOUND ?
NO
YES
H
1226
MORE HTML DATA ?
YES
NO
END
1204
PARSE SCRIPT FOR PREDETERMINED PROPERTIES AND FUNCTIONS
1206
AT LEAST ONE PROPERTY OR FUNCTION FOUND ?
NO
YES
I
1210
REPLACE READ OF COOKIE PROPERTY WITH A GET_COOKIES FUNCTION CALL
1208
READ OF COOKIE PROPERTY ?
YES
NO
1214
REPLACE WRITE TO COOKIE PROPERTY WITH A SET_COOKIES FUNCTION CALL
1212
WRITE TO COOKIE PROPERTY ?
YES
NO
G

FIG. 12A

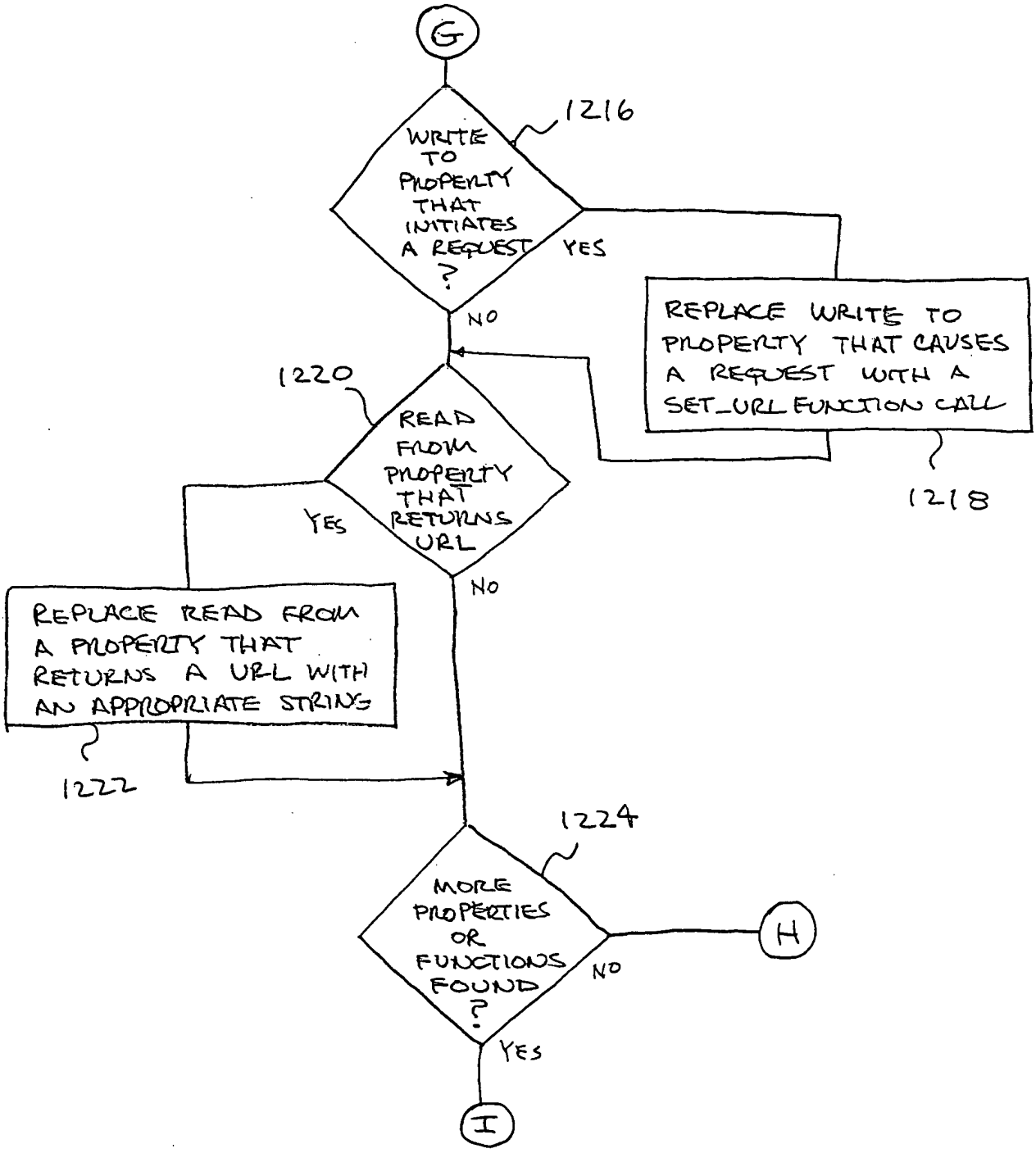
G
1216
WRITE TO PROPERTY THAT INITIATES A REQUEST ?
YES
NO
REPLACE WRITE TO PROPERTY THAT CAUSES A REQUEST WITH A SET_URL FUNCTION CALL
1218
1220
READ FROM PROPERTY THAT RETURNS URL
YES
NO
REPLACE READ FROM A PROPERTY THAT RETURNS A URL WITH AN APPROPRIATE STRING
1222
1224
MORE PROPERTIES OR FUNCTIONS FOUND ?
NO
H
YES
I

FIG. 12B